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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,548	01/16/2002	Sridevi Sarma	F00526/70003 (GSE/IMH)	9642
21125	7590	03/27/2007	EXAMINER	
NUTTER MCCLENNEN & FISH LLP WORLD TRADE CENTER WEST 155 SEAPORT BOULEVARD BOSTON, MA 02210-2604			COUGHLAN, PETER D	
			ART UNIT	PAPER NUMBER
			2129	
SHORTENED STATUTORY PERIOD OF RESPONSE .	MAIL DATE	DELIVERY MODE		
3 MONTHS	03/27/2007	PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/051,548	SARMA ET AL.
	Examiner Peter Coughlan	Art Unit 2129

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 26 January 2007.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 115-136 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 115-136 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 1/16/2002 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## Detailed Action

1. This office action is in response to an AMENDMENT entered February 5, 2007 for the patent application 10/051548 filed on January 16, 2002.
2. All previous Office Actions are fully incorporated into this Final Office Action by reference.

### ***Status of Claims***

3. Claims 137-157 are pending.

### ***35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 137-157 are rejected under 35 U.S.C. 101 for nonstatutory subject matter. The computer system must set forth a practical application of that § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-

77. The invention is ineligible because it has not been limited to a substantial practical application. A system for determining segmentation of data sets, in which each data set has given characteristics. In addition, the existence of data input means to put data into data sets. And, being able to modify the segmentation of the data sets based of various methods has no practical application. The result has to be a practical application. Please see the interim guidelines for examination of patent applications for patent subject matter eligibility published November 22, 2005 in the official gazette.

In determining whether the claim is for a “practical application,” the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the final result achieved by the claimed invention is “useful, tangible and concrete.” If the claim is directed to a practical application of the § 101 judicial exception producing a result tied to the physical world that does not preempt the judicial exception, then the claim meets the statutory requirement of 35 U.S.C. § 101.

Some claims attempt to reach a practical application by stating the datasets represents customers or products. There exist claims, which represent an association between customers and products, revenue or profit. But there is no real world function or practical application for the invention.

The invention must be for a practical application and either:

- 1) specify transforming (physical thing) or
- 2) have the FINAL RESULT (not the steps) achieve or produce a useful (specific, substantial, AND credible),  
concrete (substantially repeatable/ non-unpredictable), AND

tangible (real world/ non-abstract) result.

A claim that is so broad that it reads on both statutory and non-statutory subject matter, must be amended, and if the specification discloses a practical application but the claim is broader than the disclosure such that it does not require the practical application, then the claim must be amended.

Claims that recite the existence and modification of general abstract data sets without a practical application are not statutory. There must be a result that is a practical application.

### ***Response to Arguments***

5. Applicant's arguments filed on February 5, 2007 for claims 137-157 have been fully considered but are not persuasive.

6. In reference to the Applicant's argument:

#### **Status of the Claims**

Claims 137-157 are pending in the present application, and in the outstanding office action, all of the claims stand rejected as directed to non-statutory subject matter. By this amendment, Applicant amends claims 137 and 156. These amendments, which change slightly the wording of claim 137, are supported at least at paragraphs 7 and 242 to 246 of the published application. Upon entry of this amendment, claims 137 to 157 will be pending.

Rejection of Claims 137-157 Under 35 U.S.C. 101

The Examiner states that claims 137-157 are rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter.

The Examiner makes this rejection despite the fact that the "Examiner suggested to applicant if the claims were apparatus claims and a machine is performing the steps such as the step of modifying a segmentation, the claims will be statutory," (see, January 31, 2006 Interview Summary) and the claims were rewritten to expressly follow the Examiner's suggestion.

Specifically, in the rejection the Examiner states that:

Claim 137 has no tangible, concrete and useful results because step B(iv) does not recite what is modified and step B(v) does not recite what is outputted. As to the argument that the processor performing steps i-v, The Federal Circuit also recognizes that the fact that a nonstatutory method is carried out on a programmed computer does not make the process claims statutory. Grams, 888F. 2d at 841, 12 USPQ2d at 1829 (claim 16 ruled nonstatutory even though it was a computer-implemented process). Therefore, he claimed invention is directed to non-statutory subject matter. Claims 138-157 are also non-statutory.

Applicant's arguments with respect to claims 137-157 have been considered but are moot in view of the new language of rejection.

This is the third office action in this application to make only a summary § 101 rejection that applies inapplicable law. The same approach to this application has been taken by the Examiner in a telephonic interview as detailed in Applicants May 4, 2006 Amendment.

In this latest office action, the Examiner states that the claims are non-statutory for three reasons:

Reason No. 1 cited by the Examiner: "step B(iv) does not recite what is modified." This reason is incorrect and is an insufficient basis for the rejection. The claim does recite what is modified, "the segmentation of at least one of the first and second data sets" is modified, and the step further includes "recalculating group associate values and the metric."

Reason No. 2 cited by the Examiner: "step B(v) does not recite what is outputted." Again, this reason is incorrect and is an insufficient basis for the rejection. The claim does recite what is outputted, "the segmentation for the first and second data sets."

Reason No. 3 cite by the Examiner: "As to the argument that the processor performing steps i-v, The Federal Circuit also recognizes that the fact that a nonstatutory method is

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carried out on a programmed computer does not make the process claims statutory. Grams. 888E 2d at 841, 12 USPQ2d at 1829 (claim 16 ruled nonstatutory even though it was a computerimplemented process)." This is the third time that the Examiner has expressly relied on In re Grams, and the Examiner continues to rely on In re Grams despite the fact that Applicants have expressly shown in previous responses that the Federal Circuit has distinguished In re Grams in the section 101 context and that the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility expressly state that: "Accordingly, the Federal Circuit has made clear that Schrader and Grams are not helpful in analyzing claims under .section 101."

Regardless, Applicants amend claim 137, the only independent claim, in an effort to make it unmistakably clear that the segmented data is outputted. Applicants further point to claim 156 where a computer display is added to the system to display a representation of the group association values. As explained below, claim 137 provides a concrete and tangible result under 35 U.S.C. § 101 and the case law, especially AT&T Corp. v. Excel Communications, Inc., 172 F3.d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999).

According to the MPEP, a claim that defines a useful machine is statutory subject matter. In particular, MPEP 2106(IV)(B)(2)(a) states:

If a claim defines a useful machine or manufacture by identifying the physical structure of the machine or manufacture in terms of its hardware or hardware and software combination, it defines a statutory product. See, e.g., Lowry, 32 F.3d at 1583, 32 USPQ2d at 1034-35; Warmerdam, 33 F.3d at 1361-62, 31 USPQ2d at 1760.

Claim 137 comports with the above guideline as it defines a "machine" that includes hardware structures, namely, an input device and a data processing system having a processor. Further, the processor executes a specific task so as to generate tangible results. More particularly, Claim 137 recites a system for determining a preferred segmentation for at least first and second sets of data. The system includes one or more input devices (see Figures 1 and 2, as well as page 39 of the application at lines 7 to 9) for inputting of the first and second sets of data, along with association values that can be used to relate one or more elements of the first data set with one or more elements of the second data set. A data processing system (page 39, lines 1 to 3, described also at page 28) includes a processor (Figures 1 and 2, page 39) is operable to modify the segmentation of each data set, calculate group association values based on the association values, and calculate an optimization metric based on the group association values. Where the desired level of optimization is not achieved in a first pass, the processor repeats these activities. Where the desired level of optimization is satisfied, the newly optimized segmentation for the first and second data sets is outputted.

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Claim 156 adds a computer display to the claimed system. Claim 156 further recites that the outputting of this segmentation includes displaying a representation of group association values on the display.

Section 2106 of the Manual of Patent Examining Procedure provides:

The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (Brenner v. Manson, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96); In re Ziegler, 992, F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)). Accordingly, a complete disclosure should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful.

MPEP 2106(IV)(C)(2)(2) further states:

...USPTO personnel shall review the claim to determine it produces a useful, tangible, and concrete result. In making this determination, the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather on whether the final result achieved by the claimed invention is "useful, tangible, and concrete."

The present rejection, in which the Examiner focuses exclusively on two steps, fails this test.

The outputting of optimized segmentations for two related data sets is a useful and tangible result (two sets of data have been input and grouped or regrouped in an optimized way before being outputted - now leading to two grouped data sets having an optimized segmentation). Practical applications for this technology are numerous. Dependent claims 138 to 143 further recite the deployment of the system of claim 137 to one specific exemplary practical application - associating customers with products. This application is described in the application at pages 17 to 18 and 30 to 34. Looking, for example, at claim 141, the first and second data sets represent customers and products, and the association value represent revenues. In this embodiment, raw transaction data (a customer, the products purchased by the customer, and money paid by the customer for the products) is input, and an optimized segmentation of customer and product groupings is output. Segmenting customers and products into groups based upon the optimization of revenue and/or profit is a practical application that marketing professionals would readily understand. In fact, the Examiner has already noted that "marketing products" is a "useful area." (See, December 8, 2005 Office Action at page 3.)

Following the guidelines enumerated in this section of the MPEP, the result is concrete as it is predictable and repeatable (MPEP 2106(IV)(C)(2)((2))(c)). Each time the claimed invention is used, it will produce first and second data sets that are ordered into an optimized segmentation and output that segmentation. The result is tangible as it is a real world result (MPEP 2106(1V)(C)(2)((2))(b)). The result is also useful in that the outputs are specific, substantial, and credible (MPEP 2106(1V)(C)(2)((2))(a)).

Claim 137 thus comports with these guideline as well as the final result, namely, segmented data outputs, are useful, tangible, and concrete. The displaying of group association values in claim 156 is still further useful, tangible and concrete.

Not only do the claims recite statutory subject matter under the Patent Office guidelines, but they also comport with the case law.

The Court of Appeals for the Federal Circuit (CAFC) has held that a claim directed to a machine formed from a combination of related elements that provides "a useful, concrete and tangible result" is statutory subjectmatter under §101. *Alappat v. Averill*, 33 F.3d 1526, 1544 (Fed. Cir. 1994). For example, in *Alappat*, the Court held that a claim directed to a machine that converts data representing sample magnitudes of an input waveform, via mathematical operations, into pixel illumination intensity data is statutory subject matter under §101. The Court reasoned that the claim was directed to a machine, which is one of the four categories of patentable subject matter, and hence it appeared on its face to be directed to §101 subject matter. Further, the claim did not recite a "disembodied mathematical concept which may be characterized as an "abstract idea," but rather a specific machine to produce a useful, concrete, and tangible result." Id at 1544. In particular, the Court noted that the pixel illumination data could be used to produce a smooth waveform display. Id. The Court emphasized that "[T]he fact that the four claimed means elements function to transform one set of data to another through what may be viewed as a series of mathematical calculations does not alone justify a holding that the claim as a whole is directed to nonstatutory subject matter." Id.

In *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, the CAFC further reiterated that claims directed to transformation of data into useful, tangible results are statutory subject matter under § 101. More specifically, the Court held that "the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces "a useful, concrete and tangible result"- a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades." *State St. Bank & Trust Co.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998).

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Similar to Alappat and State Street Bank, Applicants' claimed invention is directed to a "machine," in the form of a system comprising an input device and a data processing system including a processor (and further the computer display in claim 157), that is on its face statutory subject matter. More specifically, similar to Alappat and State Street, claim 137 recites specific structures (a data processing system having a processor, as compared to processing means in the form of arithmetic logic circuits in Alappat and State Street) that transform one set of data (first and second data sets and association values in claim 137, sample magnitudes of an input waveform in Alappat, and discrete dollar amounts in State Street) into a tangible and useful output (optimized segmentations of the first and second data sets in claim 137, pixel illumination intensity data in Alappat, and final share price in State Street).

Perhaps the most relevant case law is AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999). There, the Federal Circuit held that methods implemented in software on a computer system that accepted input data, manipulated that data into a new form, and outputted that new form for use in a practical application (such as the marketing of products to customers as the Examiner has admitted in this case) constituted patentable subject matter.

According to the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, the Examiner must weigh each of the determinations to be made in light of the claim as a whole:

#### D. Establish on the Record a Prima Facie Case

The examiner should review the totality of the evidence (e.g., the specification, claims, relevant prior art) before reaching a conclusion with regard to whether the claimed invention sets forth patent eligible subject matter. The examiner must weigh the determinations made above to reach a conclusion as to whether it is more likely than not that the claimed invention as a whole either falls outside of one of the enumerated statutory classes or within one of the exceptions to statutory subject matter. "The examiner bears the initial burden ... of presenting a prima facie case of unpatentability." In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If the record as a whole suggests that it is more likely than not that the claimed invention would be considered a practical application of an abstract idea, natural phenomenon, or law of nature, the examiner should not reject the claim.

After the examiner identifies and explains in the record the basis for why a claim is for an abstract idea with no practical application, then the burden shifts to the applicant to either amend the claim or make a showing of why the claim is eligible for patent protection. See, e.g., In re Brana, 51 F.3d 1560, 1566, 34 USPQ2d 1436, 1441 (Fed. Cir. 1995); see generally MPEP § 2107 (Utility Guidelines).

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Applicants do not understand why the claims remain rejected under 35 U.S.C. §101, and the Examiner, through three office actions and a telephonic interview has provided no discernable guidance. The Examiner had made this rejection based on steps of the invention involving "mental steps" and "mathematical manipulation." Following Applicants' May 4, 2006 Amendment which included language from the Interim Guidelines that these tests were in appropriate under 35 U.S.C. § 101, the Examiner in the last Office Action seems to have simply maintained the same rejection but left out the inappropriate explanation of the rejection. Instead the Examiner continues to simply cite In re Grams, which has been decried in the Interim Guidelines and by the Federal Circuit as follows:

iv. Schrader and Grams distinguished

In the AT&T decision, the Federal circuit stated that Schrader and Grams were not persuasive because the Schrader court and the Grams court relied upon the Freeman-WalterAbele test instead of determining if the subject matter was applied in a practical manner to produce a useful, concrete and tangible result. The Federal Circuit stated:

In re Grams [888 F.2d 835, 12 USPQ2d 1824 (Fed. Cir. 1989)] is unhelpful because the panel in that case did not ascertain if the end result of the claimed process was useful, concrete, and tangible. Similarly, the court in In re Schrader [22 F.3d 290, 30 USPQ2d 1455 (Fed. Cir. 1994)] relied on the Freeman-Walter-Abele test for its analysis of the method claim involved. The court found neither a physical transformation nor any physical step in the claimed process aside from the entering of data into a record. See 22 F.3d at 294, 30 USPQ2d at 1458. The Schrader court likened the data-recording step to that of datagathering and held that the claim was properly rejected as failing to define patentable subject matter. See id. at 294, 296, 30 USPQ2d at 145859. The focus of the court in Schrader was not on whether the mathematical algorithm was applied in a practical manner since it ended its inquiry before looking to see if a useful, concrete, tangible result ensued. Thus, in light of our recent understanding of the issue, the Schrader courts analysis is as unhelpful as that of In re Grams.

AT&T, 172 F.3d at 1360, 50 USPQ2d at 1453. Accordingly, the Federal Circuit has made clear that Schrader and Grams are not helpful in analyzing claims under section 101.

Applicants are entitled to an explanation on the record as to why the claim, considered as a whole, is for an abstract idea with no practical application. The Interim Guidelines require this, and the Examiner has yet to provide one.

Examiner's response:

The 35 U.S.C. 101 rejection stands. There is not a single stated purpose, real world function or practical application which the invention fulfills. Simply having an algorithm for the generation of data sets with each data set further segmented into elements has no stated practical purpose. The applicant cites numerous decisions, which suggests support for the applicant's argument. One example is 'State St. Bank & Trust Co. v. Signature Financial Group, Inc.' In response to this argument, it is not clear why the appellant cites cases such as State Street Bank when the appellant is clearly distinguishing the real world application of dollar amounts and final share prices of State Street from how the appellant's specification discloses the claimed invention of generating data sets with each set having elements in which no real world application or practical application has been stated. The modification of the data sets provides no real world practical application. They are only data sets which differ from the original data sets. The calculation of 'group associated values' has no stated practical application. They are only values. The generation of a 'metric' which is an 'optimization of the segmentations' has no practical application. The iteration of recalculation of 'group association values' and 'metrics' after segmentation until an optimization criteria has been reached are values only with no practical application. This invention is a numeric exercise only without a real world function or practical application. The invention must have a practical application.

***Examination Considerations***

7. The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has the full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

8. Examiner's Notes are provided to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and spirit of compact prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior art but link to prior art that one of ordinary skill in the art would find inherently appropriate.

9. Examiner's Opinion: Paragraphs 7 and 8 apply. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Claims 137-157 are rejected.

***Correspondence Information***

12. Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner Peter Coughlan, whose telephone number is (571) 272-5990. The Examiner can be reached on Monday through Friday from 7:15 a.m. to 3:45 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor David Vincent can be reached at (571) 272-3080. Any response to this office action should be mailed to:

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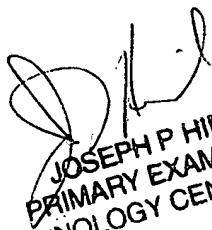
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Peter Coughlan

3/19/2007



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